

**REMARKS**

Claims 1 and 2 have been amended to remove parentheses in response to the claim objection. Withdrawal is respectfully requested.

Review and reconsideration on the merits are requested.

Claims 1-5 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,512,063 to Tang in view U.S. 2003/0068346 to Bekele et al as evidenced by U.S. Patent 6,767,882 to Jagannath et al and U.S. Patent 6,521,730 to Pabon et al.

Tang was cited as disclosing a process for preparing a fluoropolymer, which comprises carrying out polymerization of a fluorolefin in the presence of a linear hydrocarbon surfactant. The Examiner relied on Bekele et al as teaching secondary alkane sulfonates in paragraph [0102]. In this regard, the Examiner considered Tang and Bekele et al to be analogous art because they are said to both be concerned with the same technical difficulty, namely, sulfonate surfactants.

The reason for rejection was that it would have been obvious to substitute "a secondary carbonyl group of Bekele et al with the linear carbonyl group of a sulfonate of Tang." Motivation for making the proposed modification is said to be found in Jagannath et al which is said to suggest use of a surfactant with higher hydrophobicity (citing col. 8, lines 8-21) and because hydrophobic fluoromonomers are capable of being dissolved as evidenced by Pabon et al (citing col. 2, lines 10-14).

Applicants traverse, and respectfully request the Examiner to reconsider in view of the comparative test data presented in the specification and the following remarks.

There is no disclosure or even mention in Tang of the use of a *branched* surfactant, let alone one having a specific structural formula represented by formula (1) of present claim 1.

Namely, as admitted by the Examiner, Tang does not disclose a branched surfactant, and disclosure is limited only to a linear surfactant.

Paragraph [0102] of Bekele et al discloses anionic surfactants including secondary alkane sulfonates for use as an *anionic lathering surfactant* in cosmetic compositions. That is, Bekele et al relates to a cosmetic composition having a specific structure, within a technological field that is entirely different from that of the present invention. It is apparent that the composition of Bekele et al is remarkably different from the fluoropolymer composition of the present invention. Further, there is no disclosure or even suggestion of "fluoropolymer composition" in Bekele et al. Therefore, the present Applicants cannot find any motivation for combining Tang with Bekele et al in order to obtain the present invention.

More particularly, the Examiner proposes to substitute the linear hydrocarbon surfactant of Tang with a secondary alkane sulfonate of Bekele et al. This is similar to the previous rejection over Tang et al in view of U.S. Patent 6,395,701 to Connor et al, reversed by the pre-appeal board, where the Examiner considered that it would have been obvious to substitute the linear surfactant of Tang et al with the branched surfactant of Connor et al relating to various consumer products.

In more detail, Bekele et al relates to cosmetic compositions that comprise a safe and effective amount of a bonding agent comprising a trans structure. The cosmetic of Bekele et al may contain a secondary alkane sulfonate as a lathering agent. However, there is no disclosure in Bekele et al of carrying out polymerization in the presence of the lathering agent disclosed therein, let alone a process for preparing a fluoropolymer.

The Examiner considered that Tang and Bekele et al are analogous art because they are said to be concerned with the same technical difficulty, namely, sulfonate surfactants.

Applicants respectfully disagree. Tang and Bekele et al are clearly in different fields of art, Tang being concerned with a process for producing fluoroelastomers whereas Bekele et al relates to cosmetic compositions. Further, Tang is concerned with using a hydrocarbon sulfonate anionic surfactant to manufacture highly fluorinated fluoroelastomers, whereas Bekele et al is concerned with employing a secondary alkane sulfonate as a lathering surfactant having nothing to do with the manufacture of fluoroelastomers, let alone highly fluorinated fluoroelastomers. Therefore, Tang and Bekele et al do not deal with the same problem, because they employ sulfonate surfactants for entirely different purposes.

With respect to motivation for combining Tang with Bekele et al, the Examiner cited Jagannath et al and Pabon et al. However, these references provide no more than a general description of hydrophobicity of a surfactant, and thus could never be a source motivating the combination of Tang with Bekele et al by any reasonable measure.

In more detail, Jagannath et al concerns a process for producing coated detergent particles having nothing to do with polymerization in the presence of a surfactant and having nothing to do with cosmetics. Rather, Jagannath et al teaches coating detergent granules with a hydrotrope (i.e., a compound that solubilizes hydrophobic compounds in aqueous solution) so as to impart a brighter and/or whiter appearance than current detergent particles (col. 7, lines 35-37). There is no connection between Jagannath et al and either of Tang and Bekele et al.

Pabon et al relates to the use of surfactants for dissolving hydrophobic fluoromonomers inside micelles for synthesis of hydrophylic fluorocopolymers. There is no connection between Pabon et al and either of Tang and Bekele et al.

For the above reasons alone, it is respectfully submitted that the present claims are patentable over the cited prior art. Applicants further comment on patentability of the present

claims in reference to the test data presented in the specification. More particularly, Applicants explain the excellent result of the present invention as compared with the case of using a linear surfactant in reference to the results shown in Fig. 1 of the specification as follows.

As described at page 3 in the BRIEF DESCRIPTION OF DRAWING and at page 10, lines 18 to 26 of the present specification, the results obtained in Examples 1 to 8 and Comparative Examples 1 to 13 are plotted in Fig. 1. In the present invention, at first, polymerization for preparing seed particles and then seed polymerization is conducted after diluting with water.

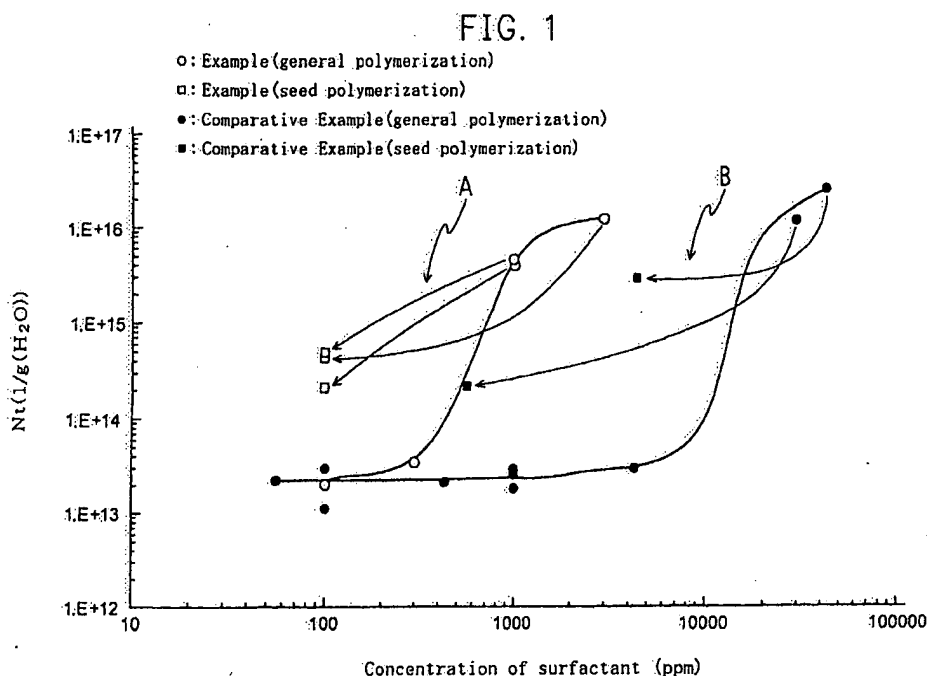
Referring to the results shown in Fig. 1, for instance, in a case of using a linear surfactant, it is necessary to conduct the first step polymerization using the surfactant in an amount of 10000 ppm in order to obtain a particle number level of  $(1E+15)$ , i.e.  $10 \times 10^{15}$  and to then conduct seed polymerization by diluting the resultant to 400 ppm surfactant.

On the other hand, in the present invention, the first step using a branched surfactant in an amount of only 1000 ppm can be conducted (i.e., a ten-fold less amount), and then the seed polymerization can be conducted after diluting to 100 ppm, whereby a particle number of the same level,  $(1E+15)$ , i.e.,  $10 \times 10^{15}$  can be attained.

In conclusion, use of the specific branched surfactant of the present invention shows the excellent result of "attaining large number of particles" by using a much smaller amount of surfactant as compared with the case using a linear surfactant, as also described on page 33, lines 7-17 of the present specification:

As is known from Figure 1, the number of particles can be significantly increased by only adding a small amount of surfactant by conducting polymerization in the presence of a surfactant represented by the formula (1).

In Examples 1, 5 and 6, the concentration of a surfactant was 100 ppm, and in Examples 5 and 6, the number of particles was at least  $1.0 \times 10^{14}$ , on the other hand, in Example 1 in which general polymerization was carried out, the number of particles was  $2 \times 10^{13}$ , which shows that the number of particles significantly increases by carrying out seed polymerization even if the surfactant concentration is equivalent.



The above-noted results are unexpectedly superior by any measurement to the cited prior art.

Withdrawal of the foregoing rejection and allowance of claims 1-5 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

AMENDMENT UNDER 37 C.F.R. § 1.111  
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Respectfully submitted,



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